

Chaetogaster limnaei

(Oligochaeta : Naididae)

Inhabiting the Mantle Cavity of the Asiatic Clam,

Corbicula fluminea, in Barkley Lake, Kentucky

BY

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DURING A TWO YEAR SAMPLING program in which the Asiatic clam, *Corbicula fluminea* (Müller, 1774), was being collected from Barkley Lake (Cumberland River), Trigg County, Kentucky, a naidid oligochaete, *Chaetogaster limnaei* von Baer, 1827, was discovered living on the gills within the mantle cavity of the clams during a brief two month period in late spring. ENG (1976) first reported *C. limnaei* in the Asiatic clam from California and indicated that infestation was seasonal with the highest prevalence (87%) occurring from March through May. He noted no evidence of parasitism and reported a low intensity of symbionts within their host (several worms per clam).

Chaetogaster limnaei was first noticed in *Corbicula* from Barkley Lake (Cumberland River Mile 67.0) on 21 May 1980 when 4 clams were being examined to determine their reproductive condition and were found to contain many worms. The clams were in poor condition, evidenced by their light weight and emaciated appearance. Clams were collected again on 4 June, and one was found to contain between 40 and 50 worms crawling on the gills, foot and mantle surface. Dissection of the clam revealed no worms internally, but there were a number of unidentified hyaline spheres in the gonads along with deteriorating clam eggs. Those clams in poorest physical condition, which generally had a high intensity of *C. limnaei*, possessed nodules or calcareous concretions on the inner shell surface producing a chalky appearance. Clams kept in aquaria died within a few days and floated to the surface. No *C. limnaei* were found in dead clams or in aquarium water putrefied by dead clams. Clams were collected again on 6, 17, and 24 June and the prevalence of infection was greater than 80% with the highest intensity in one clam being 167 worms. On 15 August many floaters, floating dead clams with closed shells, were observed in Barkley

Lake. Twelve live and 8 dead *Corbicula* were examined and no *C. limnaei* were found. Over half of the clams in the bed at Cumberland River Mile 67.0 were dead. Most of those still alive showed signs of stress—emaciated body, separating gill filaments, and rough inner surface of shell.

The effect of *Chaetogaster limnaei* on *Corbicula* is uncertain. In one clam, worms were observed between the mantle and shell. However, mantle tissue of clams in poor condition was very thin and easily torn. It is not known whether the worms penetrated the mantle on their own or crawled through the lesions caused by some other agent.

Chaetogaster limnaei has been characterized as either parasitic or commensal on snails (BRINKHURST & JAMIESON, 1971). GRUFFYDD (1965) provided evidence that two forms of *Chaetogaster limnaei* exist, one commensal on *Lymnaea pereger*, *C. limnaei limnaei*, and the other *C. limnaei vaghini* Gruffydd, 1965, parasitic in the kidney of *L. pereger*. GAMBLE & FRIED (1976) reported *C. l. limnaei* feeding on subepithelial tissue of *Physa acuta*. *Chaetogaster limnaei* has been reported also from fingernail clams, *Sphaerium* (BARBOUR, 1977) and mussels, Unionidae, (COKER *et al.*, 1921).

Although more *Chaetogaster limnaei* were found in clams in poor condition than in healthy clams, there was no conclusive evidence indicating parasitism. The relationship between *C. limnaei* and *Corbicula fluminea* is uncertain and needs further investigation.

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